

MERVE BODUR

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EDUCATION

- **University of Wisconsin-Madison**, Madison, WI, USA
 - Ph.D. in Industrial and Systems Engineering 2015
 - M.S. in Computer Sciences & M.S. in Industrial and Systems Engineering 2014
 - **Bogazici University**, Istanbul, Turkey
 - B.S. in Industrial Engineering & B.A. in Mathematics 2011
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APPOINTMENTS

- **The University of Edinburgh (UoE)**, Edinburgh, United Kingdom
 - Reader (Associate Professor) in Operational Research, School of Mathematics 2023 - Present
 - **Toronto Metropolitan University (TMU)**, Toronto, Ontario, Canada
 - Adjunct Professor, Mechanical, Industrial and Mechatronics Engineering 2023 - Present
 - **University of Toronto (UofT)**, Toronto, Ontario, Canada
 - Adjunct Professor, Mechanical and Industrial Engineering (MIE) 2023 - Present
 - Assistant Professor, Mechanical and Industrial Engineering 2017 - 2023
 - **Georgia Institute of Technology**, Atlanta, Georgia
 - Postdoctoral researcher 2015 - 2017
 - **IBM T.J. Watson Research Center**, Yorktown Heights, New York
 - Intern (for 3 months each year), Mathematical Sciences Department 2013 & 2014
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RESEARCH INTERESTS

Methodologies: Stochastic Programming, Robust Optimization, Dynamic Programming, Combinatorial Optimization, Multiobjective Optimization, Inverse Optimization, Constraint Programming, Machine Learning
Application Areas: Decision Making Under Uncertainty, Transportation, Healthcare, Telecommunication, Service System Staffing and Scheduling, Power Systems, Networks

(Authors with *, **, ‡ are graduate students, undergraduate students and postdoctoral fellows, respectively.)

SELECTED PREPRINTS

- [P1] J. Song*, A. Shalaby, and **M. Bodur**, “Extraboard Transit Operator Scheduling Considering Driver Absenteeism”, 2024
- [P2] M. Castro‡, **M. Bodur**, and A. Shalaby, “Incorporating Service Reliability in Multi-depot Vehicle Scheduling: A Chance-Constrained Approach”, 2024 [[pdf](#)]
- [P3] **M. Bodur**, T.C.Y. Chan, and I.Y. Zhu*, “Network Flow Models for Robust Binary Optimization with Selective Adaptability”, 2024 [[pdf](#)] (*alphabetical order*)
- [P4] A. Dehghan*, M. Cevik, and **M. Bodur**, “Dynamic AGV Task Allocation in Intelligent Warehouses”, 2023 [[pdf](#)]
- [P5] Z. Ansarilari*, **M. Bodur**, and A. Shalaby, “A Comprehensive Stochastic Programming Model for Transfer Synchronization in Transit Networks”, 2024 [[pdf](#)]
- [P6] A. Dehghan*, M. Cevik, and **M. Bodur**, “Neural Approximate Dynamic Programming for the Ultra-fast Order Dispatching Problem”, 2023 [[pdf](#)]
- [P7] N. Tanoumand*, **M. Bodur**, and J. Naoum-Sawaya, “Data-driven DRO: Intersecting Ambiguity Sets, Performance Analysis and Tractability”, 2023 [[pdf](#)]
- [P8] M.P. Castro‡, **M. Bodur**, and Y. Song, “Markov Chain-based Policies for Multi-stage Stochastic Integer Linear Programming with an Application to Disaster Relief Logistics”, 2023 [[pdf](#)]
- [P9] M. Daryalal*, A.N. Arslan, and **M. Bodur**, “Two-stage and Lagrangian Dual Decision Rules for Multistage Adaptive Robust Optimization”, 2023 [[pdf](#)]

- [P10] C. Guo*, **M. Bodur**, and J. Taylor, “Copositive Duality for Discrete Energy Markets”, 2023 [[pdf](#)]
- [P11] N. Sereshti, **M. Bodur**, and J. Luedtke, “Stochastic Dynamic Lot-sizing with Supplier-Driven Substitution and Service Level Constraints”, 2022 [[pdf](#)]
- [P12] C. Guo*, H. Nagarajan, and **M. Bodur**, “Tightening Quadratic Convex Relaxations for the AC Optimal Transmission Switching Problem”, 2022 [[pdf](#)]

REFEREED JOURNAL PUBLICATIONS

- [J1] K. Mousavi*, **M. Bodur**, M. Cevik, and M.J. Roorda, “Approximate Dynamic Programming for Crowd-shipping with In-store Customers”, *Transportation Research: Part B*, 2024 [[url](#)]
- [J2] Z. Ansarilari*, **M. Bodur**, and A. Shalaby, “A Novel Model for Transfer Synchronization in Transit Networks and a Lagrangian-based Heuristic Solution Method”, *European Journal of Operational Research*, 2024 [[url](#)]
- [J3] M. MacNeil*, and **M. Bodur**, “Leveraging Decision Diagrams to Solve Two-stage Stochastic Programs with Binary Recourse and Logical Linking Constraints”, *European Journal of Operational Research*, 2024 [[url](#)]
- [J4] **M. Bodur**, M. Cevik, A.A. Cire, M. Ruschin, and J. Wang*, “Multistage Stochastic Fractionated Intensity Modulated Radiation Therapy Planning”, *Computers and Operations Research*, 2023 [[url](#)]
- [J5] C. Riascos*, **M. Bodur**, and D. Aleman, “A Branch-and-Price Algorithm Enhanced by Decision Diagrams for the Kidney Exchange Problem”, *Manufacturing & Service Operations Management*, 2023 [[url](#)]
- [J6] O. Şeker[‡], **M. Bodur**, and H. Pouya[‡], “Routing and Wavelength Assignment with Protection: A QUBO Approach Enabled by Digital Annealer Technology”, *IIEE Transactions*, 2024 [[url](#)]
- [J7] O. Şeker[‡], M. Cevik, **M. Bodur**, Y. Lee-Bartlett, and M. Ruschin, “A Multiobjective Approach for Sector Duration Optimization in Stereotactic Radiosurgery Treatment Planning”, *INFORMS Journal on Computing*, 2022 [[url](#)]
- [J8] M. Daryalal*, **M. Bodur**, and J. Luedtke, “Lagrangian Dual Decision Rules for Multistage Stochastic Mixed Integer Programming”, *Operations Research*, 2022 [[url](#)]
- [J9] O. Şeker[‡], N. Tanoumand*, and **M. Bodur**, “Digital Annealer for Quadratic Unconstrained Binary Optimization: A Comparative Performance Analysis”, *Applied Soft Computing*, 2022 [[url](#)]
- [J10] M. Anderson*, **M. Bodur**, S. Rathwell**, and V. Sarhangian, “Optimization Helps Scheduling Nursing Staff at the Long-Term Care Homes of the City of Toronto”, *INFORMS Journal of Applied Analytics*, 2023 [[url](#)]
- [J11] M. Daryalal*, and **M. Bodur**, “Stochastic RWA and Lightpath Rerouting in WDM Networks”, *INFORMS Journal on Computing*, 2022 [[url](#)]
- [J12] C. Guo*, **M. Bodur**, and D. Papageorgiou, “Generation Expansion Planning with Revenue Adequacy Constraints”, *Computers and Operations Research*, 2022 [[url](#)]
- [J13] Z. Ansarilari*, M.M. Nesheli[‡], **M. Bodur**, and A. Shalaby, “Transfer Time Optimization in Public Transit Networks: Assessment of Alternative Models”, *Transportmetrica A: Transport Science*, 2023 [[url](#)]
- [J14] **M. Bodur**, S. Ahmed, N. Boland, and G. L. Nemhauser, “Decomposition for loosely coupled integer programs: A multiobjective perspective”, *Mathematical Programming*, 2022 [[url](#)]
- [J15] **M. Bodur**, T.C.Y. Chan, and I.Y. Zhu*, “Inverse Mixed Integer Optimization: Polyhedral Insights and Trust Region Methods”, *INFORMS Journal on Computing*, 2022 [[url](#)] (alphabetical order)
- [J16] J. Wang*, M. Cevik, and **M. Bodur**, “On the Impact of Deep Learning-based Time-series Forecasts on Multistage Stochastic Programming Policies”, *INFOR: Information Systems and Operational Research*, 2022 [[url](#)]
- [J17] K. Mousavi*, **M. Bodur**, and M.J. Roorda, “Stochastic Last-mile Delivery with Crowd-shipping and Mobile Depots”, *Transportation Science*, 2022 [[url](#)]
- [J18] M. MacNeil*, and **M. Bodur**, “Constraint Programming Approaches to the Discretizable Molecular Distance Geometry Problem”, *Networks*, 2022 [[url](#)]
- [J19] D. Bergman, **M. Bodur**, C. Cardohna, and A.A. Cire, “Network Models for Multiobjective Discrete Optimization”, *INFORMS Journal on Computing*, 2022 [[url](#)] (alphabetical order)
- [J20] M. MacNeil*, and **M. Bodur**, “Integer Programming, Constraint Programming, and Hybrid Decomposition Approaches to Discretizable Distance Geometry Problems”, *INFORMS Journal on Computing*, 2022 [[url](#)]
- [J21] C. Guo*, **M. Bodur**, D. Aleman, and D. Urbach, “Logic-based Benders Decomposition and Binary Decision Diagram Based Approaches for Stochastic Distributed Operating Room Scheduling”, *INFORMS Journal on Computing*, 2021 [[url](#)]
- [J22] **M. Bodur**, A. Del Pia, S.S. Dey, and M. Molinaro, “Lower bounds on the lattice-free rank for packing and covering integer programs”, *SIAM Journal on Optimization*, 2019 [[url](#)] (alphabetical order)

- [J23] **M. Bodur**, and J. Luedtke, “Two-Stage Linear Decision Rules for Multi-stage Stochastic Programming”, *Mathematical Programming*, 2022 [[url](#)]
 - [J24] **M. Bodur**, and J. Luedtke, “Integer Programming Formulations for Minimum Deficiency Interval Coloring”, *Networks*, 2018 [[url](#)]
 - [J25] **M. Bodur**, A. Del Pia, S.S. Dey, M. Molinaro, and S. Pokutta, “Aggregation-based cutting-planes for packing and covering integer programs”, *Mathematical Programming*, 2018 [[url](#)] (alphabetical order)
 - [J26] **M. Bodur**, S. Dash, and O. Günlük, “A new lift-and-project operator”, *European Journal of Operational Research*, 2017 [[url](#)]
 - [J27] **M. Bodur**, S. Dash, and O. Günlük, “Cutting Planes from Extended LP Formulations”, *Mathematical Programming*, 2016 [[url](#)]
 - [J28] **M. Bodur**, S. Dash, O. Günlük, and J. Luedtke, “Strengthened Benders Cuts for Stochastic Integer Programs with Continuous Recourse”, *INFORMS Journal on Computing*, 2016 [[url](#)]
 - [J29] **M. Bodur**, and J. Luedtke, “Mixed-Integer Rounding Enhanced Benders Decomposition for Multiclass Service System Staffing and Scheduling with Arrival Rate Uncertainty”, *Management Science*, 2016 [[url](#)]
 - [J30] **M. Bodur**, T. Ekim, and Z. C. Taşkın, “Decomposition Algorithms for Solving the Minimum Weight Maximal Matching Problem”, *Networks*, 2013 [[url](#)]
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SELECTED REFEREED CONFERENCE PUBLICATIONS

- [C1] J. Song*, A. Shalaby, and **M. Bodur**, “Extraboard Transit Operator Planning and Scheduling under Uncertainty”, *CD Proceedings of the 103th Annual TRB Meeting, Washington, USA* 2024
 - [C2] J. Dumouchelle*, R. Patel*, E.B. Khalil, and **M. Bodur**, “Neur2SP: Neural Two-Stage Stochastic Programming”, *Advances in Neural Information Processing Systems (NeurIPS)* 2022 [[pdf](#)]
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PATENT

- Z. Ansarilari*, M.M. Nesheli[‡], S. Sriukenthiran, **M. Bodur**, and A. Shalaby, “Comprehensive Transfer Time Optimization Tool”. Disclosure Reference No: 10003810. Disclosure date: July 23, 2019.
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PRESENTATIONS

Invited Plenaries and Tutorials

1. **Plenary talk**, *Decision Rules for Sequential Decision-making Under Uncertainty*, *VOCAL Optimization Conference: Advanced Algorithms*, Budapest, Hungary, 2024.
2. **Plenary (survey-type) talk**, *A Walk Through the ACOPF World*, *Oberwolfach Workshop on Mixed-integer Nonlinear Optimization*, Oberwolfach, Germany, 2023.
3. **Tutorial**, *Benders Decomposition Based Approaches in Two-stage Stochastic Integer Programming*, *Distributed Computing and Decomposition Methods for Optimization Under Uncertainty*, *International Conference on Stochastic Programming (ICSP)*, Davis, CA, USA, 2023.
4. **Plenary talk**, *Methodological Advances in Two-stage Stochastic Programming*, *Workshop to Celebrate 20 Years of Solving Constraint Integer Programs (SCIP)*, Zuse Institute Berlin, Germany, 2022.
5. **Semi-plenary talk**, *Linear Decision Rules for Multistage Stochastic Programming*, *International Conference on Stochastic Programming (ICSP)*, Trondheim, Norway, 2019.

Invited Talks at Academic Institutions and Research Labs

6. *Operations and Decision Sciences*, Indian Institute of Management Ahmedabad, India, virtual, 2024
7. *Department of Computing*, Imperial College London, UK, 2024
8. *Department of Mathematics*, London School of Economics and Political Science, UK, 2024
9. *TESCO Research Innovation Seminars*, Virtual, 2024
10. *CERMICS, École des Ponts ParisTech*, France, 2024
11. *Department of Industrial Engineering*, Bilkent University, Turkey, virtual, 2024

12. *DeGroote School of Business, McMaster University, Hamilton, Ontario, Canada, 2024*
13. *SKEMA Business School, Lille, France, 2024*
14. *Department of Industrial Engineering, Pontificia Universidad Católica de Chile, Santiago, Chile, 2023*
15. *HEC Montréal and GERAD, Montréal, QC, Canada, 2023.*
16. *Department of ISE, North Carolina State University, USA, 2023.*
17. *Department of IMSE, Texas Tech University, USA, virtual, 2023.*
18. *Institut de Mathématiques de Bordeaux, Université de Bordeaux, France, 2022.*
19. *Department of Industrial Engineering, Koc University, Turkey, virtual, 2021.*
20. *DeGroote School of Business, McMaster University, Burlington, Ontario, Canada, virtual, 2021.*
21. *Paul Merage School of Business, University of California - Irvine, CA, USA, virtual, 2021.*
22. *Department of Industrial Engineering, Bogazici University, Istanbul, Turkey, virtual, 2021.*
23. *University of Minnesota, Minneapolis, MN, USA, virtual, 2021.*
24. *SILO Seminar Series, UW-Madison, virtual, 2021.*
25. *GAMMA Seminar Series, University at Buffalo, virtual, 2021.*
26. *Rotman School of Management, University of Toronto, ON, Canada, 2020.*
27. *Department of Management Sciences, University of Waterloo, ON, Canada, 2019.*
28. *Department of Combinatorics and Optimization, University of Waterloo, ON, Canada, 2018.*
29. *Department of Industrial Engineering, Pontificia Universidad Católica de Chile, Santiago, Chile, 2018.*
30. *School of Business, Universidad Adolfo Ibañez, Santiago, Chile, 2018.*
31. *Department of Industrial Engineering, Bogazici University, Istanbul, Turkey, 2018.*
32. *Sauder School of Business, University of British Columbia, Vancouver, BC, Canada, 2018.*
33. *School of Business, Universidad Adolfo Ibañez, Santiago, Chile, 2017.*
34. *Department of Industrial Engineering, Pontificia Universidad Católica de Chile, Santiago, Chile, 2017.*
35. *Department of Industrial Engineering, Clemson University, Clemson, SC, USA, 2015.*

Invited Talks at Conferences, Workshops, Meetings

1. *INFORMS Annual Meeting, Seattle, WA, USA, 2024.*
2. *Discrete Optimization: Mathematics, Algorithms, and Computation Workshop, ICERM, Providence, RI, USA, 2024.*
3. *25th International Symposium on Mathematical Programming, Montréal, QC, Canada, 2024.*
4. *Mixed Integer Programming Workshop, Lexington, KY, USA, 2024.*
5. *Aussois Combinatorial Optimization Workshop, Aussois, France, 2024.*
6. *INFORMS Annual Meeting, Phoenix, AZ, USA, 2023.*
7. *Workshop on Recent Advances in Optimization, Fields Institute, Toronto, Canada, 2023.*
8. *Cargese-Porquerolles Workshop on Combinatorial Optimization, Porquerolles, France, 2023.*
9. *(Short research announcement talk) Oberwolfach Workshop on Mixed-integer Nonlinear Optimization, Oberwolfach, Germany, 2023.*
10. *International Conference on Stochastic Programming, Davis, CA, USA, 2023.*
11. *Linear and Non-Linear Mixed Integer Optimization Workshop, ICERM, Brown University, Providence, RI, USA, 2023.*
12. *Aussois Combinatorial Optimization Workshop, Aussois, France, 2023.*
13. *INFORMS Annual Meeting, Indianapolis, IN, USA, 2022.*
14. *Workshop on Recent Advances in Optimization, Fields Institute, Toronto, Canada, 2022.*
15. *INFORMS Annual Meeting, Indianapolis, IN, USA, 2022.*

16. *OPTiMA AI-based Optimisation Seminar Series*, virtual, 2022.
17. *CAIMS*, Vancouver, BC, Canada (hybrid), 2022.
18. *Optimization Days*, Montréal, QC, Canada, 2022.
19. *Autumn School on Decision Diagrams*, virtual, 2021.
20. *INFORMS Annual Meeting*, hybrid, 2021.
21. *CRM Workshop on Decision Making under Uncertainty*, virtual, 2021.
22. *Mini-symposium on Sensor Network Localization and Dynamical Distance Geometry*, virtual, 2021.
23. *40th Congress on Operations Research - Industrial Engineering*, virtual, 2021.
24. *Canadian OR Society (CORS) Conference*, virtual, 2021.
25. *INFORMS Annual Meeting*, virtual, 2020.
26. *UT-ITE Seminar Series*, Toronto, ON, Canada, 2019.
27. *Conference on Optimization*, Fields Institute, Toronto, ON, Canada, 2019.
28. *INFORMS Annual Meeting*, Seattle, WA, USA, 2019.
29. *Optimization Days*, Montréal, QC, Canada, 2019.
30. *Data Science Lab Seminars at Ryerson University*, Toronto, ON, Canada, 2019.
31. *Industrial Optimization Seminar*, Fields Institute, Toronto, ON, Canada, 2019.
32. *INFORMS Annual Meeting*, Phoenix, AZ, USA, 2018.
33. *Data Science Lab Seminars at Ryerson University*, Toronto, ON, Canada, 2018.
34. *INFORMS Annual Meeting*, Phoenix, AZ, USA, 2018.
35. *UT-ITE Seminar Series*, Toronto, ON, Canada, 2018.
36. *Symposium on Decision Diagrams for Optimization*, Pittsburgh, PA, USA, 2018.
37. *23rd International Symposium on Mathematical Programming*, Bordeaux, France, 2018.
38. *Optimization Days*, Montréal, QC, Canada, 2018.
39. *Mixed Integer Programming Workshop*, Coral Gables, FL, USA, 2016.
40. *INFORMS Annual Meeting*, Houston, TX, USA, 2017.
41. *IFORS Conference*, Québec City, QC, Canada, 2017.
42. *Modern Convex Optimization Workshop*, Toronto, ON, Canada, 2017.
43. *SIAM Conference on Optimization*, Vancouver, BC, Canada, 2017.
44. *ISyE DOS Optimization Seminars*, Georgia Tech, Atlanta, GA, USA, 2016.
45. *INFORMS Annual Meeting*, Nashville, TN, USA, 2016.
46. *University of Bergamo/Georgia Institute of Technology Workshop*, Atlanta, GA, USA, 2016.
47. *INFORMS Optimization Society Conference*, Princeton, NJ, USA, 2016.
48. *ISyE DOS Optimization Seminars*, Georgia Tech, Atlanta, GA, USA, 2015.
49. *INFORMS Annual Meeting*, Philadelphia, PA, USA, 2015.
50. *22nd International Symposium on Mathematical Programming*, Pittsburgh, PA, USA, 2015.
51. *INFORMS Computing Society Conference*, Richmond, VA, USA, 2015.
52. *INFORMS Annual Meeting*, San Francisco, CA, USA, 2014.
53. *INFORMS Optimization Society Conference*, Houston, TX, USA, 2014.
54. *Systems Information Learning Optimization (SILO) Seminars*, Madison, WI, USA, 2013.
55. *INFORMS Annual Meeting*, Minneapolis, MN, USA, 2013.
56. *2nd Istanbul Design Theory, Graph Theory and Combinatorics Conference*, Istanbul, Turkey, 2011.

Posters

1. *Mixed Integer Programming Workshop*, Coral Gables, FL, 2016.
2. *ACNW Optimization Workshop*, Chicago, IL, USA, 2015.
3. *Mixed Integer Programming Workshop*, Chicago, IL, USA, 2015.
4. *Mixed Integer Programming Workshop*, Columbus, OH, USA, 2014.
5. *Mixed Integer Programming Workshop*, Madison, WI, USA, 2013.

RESEARCH GRANTS and FUNDING

- **(Under Review) TSL Cross-Regional Grant**
 Role: co-PI (Other co-PI: Aliaa Alnaggar)
Project title: Distributionally Robust Service Region Design in Crowdsourced Delivery
- **(Under Review) EPSRC Mathematical Sciences Small Grants**
 Role: co-PI (Other co-PIs: Joerg Kalcsics, Sergio Garcia Quiles, Goncalo dos Reis)
Project title: Combined vehicle and charging scheduling optimization for electric intercity buses services
- **(Under Review) Concurso de Fomento a la Vinculación Internacional para Instituciones de Investigación, Convocatoria 2024**
 Role: Co-applicant (PI: David Salas, co-applicants: Gonzalo Muñoz, Andrea Canales Gutiérrez, Margarita Castro, Andre Cire, Gonzalo Romero)
Project title: Optimización y Gestión bajo Incertidumbre para la Preparación y Recuperación ante Desastres
- **Early Researcher Award, 2023** Award value: \$190,000
 Granting agency: Ontario Ministry of Colleges and Universities
Project title: Sequential Decision Making Under Uncertainty for Timely Healthcare Operations Management Problems
 Note: The funds are declined due to move to UoE.
- **Mitacs Accelerate Grant, 2021** \$30,000
 Role: PI (co-PI: Amer Shalaby)
 Granting agency: Mathematics of Information Technology and Complex Systems
Project title: Stochastic Optimization Approach for the Multi Depot Vehicle Scheduling Problem
 Note: This fund is fully used to support a postdoctoral fellow of mine in the capacity of a collaborative project with the co-PI.
- **NSERC Alliance Grant, 2020-2024** Bodur portion: \$115,000
 Role: Co-applicant, lead of 1/24 projects (Main PI: Matt Roorda)
 Granting agency: Natural Sciences & Engineering Research Council of Canada
Project title: City Logistics Solutions for Distribution in the Last-mile Economy
 Note: This fund is used to support a Ph.D. student co-supervised by me and the Main PI.
- **Dean's Strategic Fund, 2019-2021** Project total value: \$447,000
 Role: 1/22 collaborators (PI: Amer Shalaby)
 Granting agency: Faculty of Applied Science and Engineering, University of Toronto
Project title: Transit Analytics Lab (TAL)
 Note: A portion of this fund is used to support multiple graduate students co-supervised by me and the PI over the duration of the grant; I do not have the information about the exact personal value. Also, I consistently support a variety of TAL activities, including the development of new grant proposals.
- **Canada Research Continuity Emergency Fund (for the Fujitsu project), 2020** \$17,439
 Granting agency: Tri-agency of Canadian Government (namely CIHR, NSERC, and SSHRC)
- **Canada Research Continuity Emergency Fund (for the LG project), 2020** \$10,164
 Granting agency: Tri-agency of Canadian Government (namely CIHR, NSERC, and SSHRC)
- **Connaught New Researcher Award, 2019-2020** \$20,000
Project title: Optimizing Strategic Decisions for Electric Car Sharing Systems
- **France-Canada Research Fund, 2020-2022+2** \$14,800
 Role: PI (co-PI: Ayse Nur Arslan)
Project title: Data-driven decision rules for optimization under uncertainty
 Note: This mobility fund is extended by two years due to Covid, indicated by "+".
- **LG Sciencepark, 2019-2020** \$175,000
 Role: PI (co-PI: Mucahit Cevik)

Project title: Data Driven Prediction

Note: This fund is used to support graduate students from both institutions of the co-PIs; I was involved in all of the sub-projects.

- **Fujitsu Group, 2019-2020**

Project title: Optimization using a Digital Annealer: Performance Analyses and New Methodology Development for Scalability and Applicability

\$135,000
- **CIHR Spring Project Grant, 2019-2023**

Role: 1/8 co-applicants (PI: Dr. David Urbach)
Granting agency: Canadian Institutes of Health Research
Project title: Using Real-world Data to Simulate the Effects of Efficient Referral Strategies on Wait Times for Elective Surgery in Canada
Note: I significantly contributed to the project and grant application development in the absence of a key collaborator, one of the remaining seven co-applicants, due to their medical leave, but has not played an active role in the execution of the project as transferred that duty to their colleague upon their return to full-time research.

project total value: \$673,200
- **Fujitsu Group, 2018-2019**

Project title: Optimization using a Digital Annealer: Performance Analyses and Decomposition Algorithms

\$100,000
- **UHN Subgrant, 2018-2019**

Role: Subgrantee PI (UHN PI: Dr. David Urbach)
Granting agency: University Health Network
Project title: Distributed Operating Room Scheduling Under Uncertainty
Note: This fund is fully used to support a Ph.D. student of mine.

\$15,000
- **Dean's Spark Professorship, 2018-2021**

Granting agency: Faculty of Applied Science and Engineering, University of Toronto

\$225,000
- **NSERC Discovery Launch Supplement, 2018-2019**

Note: This supplement is for Early Career Researchers.

\$12,500
- **NSERC Discovery Grant, RGPIN-2018-04984, 2018-2023+2**

Note: This grant (RGPIN-2018-04984) is extended two years due to Covid, indicated by "+".
Granting agency: Natural Sciences & Engineering Research Council of Canada
Project title: Multistage Stochastic Integer Programming: Approximate Solution Methods and Applications

\$180,000+72,000
- **UHN Subgrant, 2017-2018**

Role: Subgrantee PI (UHN PI: Dr. David Urbach)
Granting agency: University Health Network
Project title: Operating Room Scheduling in a Network of Hospitals
Note: This fund is fully used to support a Ph.D. student of mine.

\$25,000
- **Start-up Funds, 2017-Present**

Granting agency: University of Toronto

\$100,000

AWARDS and HONORS¹

- **Individual Awards**
 - Early Researcher Award, Ontario Ministry of Colleges and Universities 2023
 - Honorable Mention in MCDM Junior Researcher Best Paper Award Competition 2022
 - Connaught New Researcher Award, UofT 2019-2020
 - MIE Early Career Teaching Award, UofT 2019
 - Dean's Spark Professorship, UofT 2018-2021
 - Honorable Mention in Best Poster Competition in MIP Workshop 2015
 - IBM Ph.D. Fellowship 2014-2015
 - MIP Workshop Student Travel Award 2014

¹Abbreviations. UofT: University of Toronto, MIE: Mechanical and Industrial Engineering, ISyE: Industrial and Systems Engineering, MCDM: Multiple Criteria Decision Making, MIP: Mixed Integer Programming, CORS: Canadian Operational Research Society, INFORMS: Institute for Operations Research and the Management Sciences, UTOrg: University of Toronto Operations Research Group

- Department of ISyE Graduate Student Travel Award, University of Wisconsin-Madison 2014
- Honorable Mention in Best Poster Competition in MIP Workshop 2013
- **Selected Student Awards**
 - Centennial Senior Project (Thesis) Award 2022
Haoyuan Xue, Undergraduate student
 - First Place, CORS Student Paper Competition 2022
Ian Zhu, Ph.D. student (co-supervised with Timothy Chan)
 - Finalist, CORS Student Paper Competition 2021
Maryam Daryalal, Ph.D. student
 - Finalist, INFORMS Undergraduate Operations Research Prize 2020
Anna Deza, Undergraduate student
 - Best Operations Research Poster Presentation in MIE Graduate Research Symposium 2018
Maryam Daryalal, Ph.D. student
- **Service Awards**
 - UTOrg (for which I act as the faculty supervisor)
 - ▷ INFORMS Student Chapter Annual Award as a Magna Cum Laude chapter 2022
 - ▷ INFORMS Student Chapter Annual Award as a Magna Cum Laude chapter 2021
 - ▷ Honorable mention in INFORMS Student Chapter Annual Award 2020
 - Judith Liebman Award, INFORMS 2021
Maryam Daryalal, Ph.D. student

SERVICE

EXTERNAL SERVICE

- **Associate Editor**
 - [OMEGA-The International Journal of Management Science](#), 2024-present
 - [Operations Research Letters](#), 2024-present
 - [INFOR: Information Systems and Operational Research](#), 2021-present
- **Journals reviewed for (# of different articles reviewed, not including the revisions reviewed)**
 - Annals of Operations Research (1)
 - Computers and Operations Research (1)
 - Energy Systems (1)
 - European Journal of Operational Research (12)
 - Fields Institute Communication Series on Data Science and Optimization (1)
 - IEEE Transactions on Pattern Analysis and Machine Intelligence (1)
 - IISE Transactions (2)
 - IISE Transactions on Healthcare Systems Engineering (1)
 - INFORMS Journal on Computing (12)
 - INFORMS Journal on Optimization (2)
 - International Journal of Critical Infrastructure Protection (1)
 - International Transactions in Operational Research (3)
 - Journal of Optimization Theory and Applications (1)
 - Management Science (3)
 - Manufacturing and Service Operations Management (2)
 - Mathematical Programming (7)
 - Mathematical Programming Computation (2)
 - Mathematics of Operations Research (1)

- Naval Research Logistic (1)
- Networks (1)
- Omega: The International Journal of Management Science (2)
- Operations Research (10)
- Optimization Letters (1)
- Optimization Methods and Software (1)
- Production and Operations Management (1)
- SIAM Journal on Optimization (1)
- Transportation Research Record (1)
- Transportation Science (2)
- **Conferences reviewed for (# of conferences)**
 - AAAI (1)
 - Integer Programming and Combinatorial Optimization (IPCO) (1)
 - International Symposium on Combinatorial Optimization (ISCO) (1)
 - CPAIOR (2)
 - INFORMS Optimization Society (IOS) Conference (1)
- **Award Committees reviewed for (# of awards)**
 - INFORMS George Nicholson Student Paper Competition (2024-2025) (1)
 - INFORMS Computing Society (ICS) Distinguished Service Prize (2024) (1)
 - INFORMS Optimization Society (IOS) Young Researcher Prize (2024) (1)
 - INFORMS Optimization Society (IOS) Student Paper Prize (2023) (1)
 - Canadian OR Society (CORS) Student Paper Prize (2021, 2022) (2)
 - INFORMS Computing Society (ICS) Student Paper Prize (2021) (1)
 - INFORMS Poster Competition (2021) (1)
- **Ad-hoc Grant Proposal Reviewer**
 - Leverhulme Trust Research Project Grants
 - NSERC Discovery Grant
 - NWO (Dutch Research Council) Talent Programme
 - NSERC Alliance Grant
 - Mitacs Accelerate
- **Conference/Workshop Organization**
 - ICS **cluster chair** for the INFORMS Annual Meeting 2024
 - **Cluster co-organizer**: Discrete Stochastic Programming stream of the Optimization under Uncertainty cluster for the 25th International Symposium on Mathematical Programming (ISMP), 2024
 - **Organizing committee member**: Workshop on Quantum Computing and Operations Research, 2022
 - Big Data Analytics and Optimization **cluster co-chair**: CORS-INFORMS International Conference, 2022
 - **Program committee member**: International Symposium on Combinatorial Optimization (ISCO), 2022
 - Integer Programming **cluster chair**: INFORMS Computing Society (ICS) Conference, 2022
 - Discrete Optimization **cluster co-chair**: INFORMS Optimization Society (IOS) Conference, 2022
 - **Program committee member**: Canadian Operational Research Society (CORS) Annual Conference, 2021
 - Optimization **cluster co-chair**: Canadian Operational Research Society (CORS) Annual Conference, 2021
 - IOS Integer and Discrete Optimization **cluster chair** for the INFORMS Annual Meeting 2021
 - IOS Integer and Discrete Optimization **cluster chair** for the INFORMS Annual Meeting 2020
 - INFORMS Computing Society (ICS) **cluster co-chair** for the INFORMS Annual Meeting 2019
 - **Co-chair**: The Workshop of the 25th International Conference on Principles and Practice of Constraint Programming, 2019
(Workshop on Constraint Solving and Special Purpose Hardware Architectures)
 - **Organizing committee member**: Mixed Integer Programming (MIP) Workshop 2017

- **Other Committees**

- INFORMS Journal on Optimization review and editor-in-chief search committee, 2024

- **Ph.D. Thesis External Examiner**

- Seyed Hossein Hashemi Doulabi, École Polytechnique de Montréal (May 2017)
- Mehran Poursoltani, HEC Montréal (May 2023)
- *Ongoing*: Anthony Karahalios, CMU (attended Proposal in Nov 2023)

PROFESSIONAL ORGANIZATION MEMBERSHIP

- **Council member-at-large** of Mathematical Optimization Society (MOS), 2024-2026
- **Vice-Chair/Chair-Elect** of INFORMS Computing Society (ICS), Jan 1st 2024-Dec 31st 2025
- **Committee on Stochastic Programming** (COSP: elected board of Stochastic Programming Society), 2023-Present
- **Vice Chair** of Integer and Discrete Optimization of the INFORMS Optimization Society (IOS), 2020-2021
- INFORMS (Institute for Operations Research and the Management Sciences) Senior Member, INFORMS Optimization Society, INFORMS Computing Society, CORS (Canadian Operational Research Society), MOS (Mathematical Optimization Society), SPS (Stochastic Programming Society), SIAM (Society for Industrial and Applied Mathematics)

UNIVERSITY SERVICE @UoE

- **School Committees**

- Deputy PhD Representative (OOR), 2024-present
- Academic Cohort Lead, 2024-present
- PhD Student Recruitment Committee, 2024
- Flora Philip Fellowship Shortlisting Committee, 2023
- Chancellor's Fellowship Interview Panel, 2023

- **Organization**

- ERGO Seminar Series coordinator and organizer, 2023-present

- **PhD Thesis Examiner**

- Yuzhou Qiu (2024)

UNIVERSITY SERVICE @UofT

- **Ph.D. Committee Member**

- Vahid Roshanaei (June 2017), Margarita Castro (November 2020), Hassan Anis (December 2022), Jason Zhang (TBD), Bo Lin (TBD), Oscar Guaje (TBD), Rahul Patel (TBD), David Islip (TBD), Justin Dumouchelle (TBD)

- **Ph.D. Thesis External Examiner**

- Sharaf Christopher Mohamed, MIE (January 2021)

- **M.A.Sc. Thesis Examiner**

- Neal Kaw (August 2017), Alexia Yeo (March 2018), Chang Liu (July 2018), Ian Zhu (August 2018), Benjamin Potter (September 2018), Ranjith Kumar (January 2019), Leyi Chang (July 2019), Seyed Farzad Mousavi (from ECE; September 2020), Lyle Gauthier (January 2022), Anton Korikov (June 2022), Dylan Camus (September 2022)

• Faculty Advisor

- UTOrg (University of Toronto Operations Research Group), 2020-2023
 - ▷ INFORMS 2022 Student Chapter Annual Award as a Magna Cum Laude chapter
 - ▷ INFORMS 2021 Student Chapter Annual Award as a Magna Cum Laude chapter
 - ▷ Honorable mention in INFORMS 2020 Student Chapter Annual Award

• Other Departmental Service

- MIE Progress Through the Ranks (PTR) evaluation committee, 2020-2021
- Industrial Engineering curriculum renewal committee member, 2018-2022
- MIE faculty search committee member, 2018-2023 (5 hiring cycle)
- MIE Distinguished Seminar Series committee chair, 2021-2023
- MIE Distinguished Seminar Series committee member, 2017-2021
- Founder and organizer of Operations Research Seminar Series in MIE, 2018-2023

STUDENT SUPERVISION

Current Research Group

(EG: expected graduation, co-S: co-supervisor)

PH.D. STUDENTS

- Moira MacNeil, Ph.D. student (UofT) (EG: 2024)
- Zoha Sherkat-Masoumi, Ph.D. student (UofT) (EG: 2026)
- Arash Dehghan-Kooshkghazi, Ph.D. student (TMU) (EG: 2025, co-S: Mucahit Cevik)
- Jilin Song, Ph.D. student (UofT) (EG: 2026, co-S: Amer Shalaby)
- Haoyuan Xue, Ph.D. student (UofT) (EG: 2027)
- Juan Valencia, Ph.D. student (UoE) (EG: 2028)
- Buket Ozen, Ph.D. student (UoE) (EG: 2028; co-S: Alper Yildirim)

Graduated Students, Past Postdocs and Visitors

POSTDOCTORAL FELLOWS

- Oylum Şeker, Postdoctoral Fellow: 2019-2022
- [Margarita Castro](#), Postdoctoral Fellow: 2020-2021
(First Position: Assistant Professor, Department of Industrial Engineering at Pontificia Universidad Católica de Chile)
- Hamed Pouya, Postdoctoral Fellow: 2019-2020
(First Position: Senior Associate, Network Planning at Ciena)

PH.D. STUDENTS

- Lizeth Carolina Riascos Álvarez, Ph.D.: Graduated in August 2023 (co-S: Dionne Aleman, UofT-MIE)
- [Ian Zhu](#), Ph.D.: Graduated in June 2023 (co-S: Timothy Chan, UofT-MIE)
(First Position: Assistant Professor, National University of Singapore Business School)
- Zahra Ansarilari, Ph.D. at CIV: Graduated in December 2022 (co-S: Amer Shalaby, UofT-CIV)
- [Maryam Daryalal](#), Ph.D.: Graduated in August 2022
(First Position: Assistant Professor, Department of Decision Sciences at HEC Montréal)
- Kianoush Mousavi, Ph.D. at CIV: Graduated in August 2022 (co-S: Matt Roorda, UofT-CIV)
- [Cheng Guo](#), Ph.D.: Graduated in August 2021
(First Position: Assistant Professor, School of Mathematical and Statistical Sciences at Clemson University)
- Narges Sereshti, Visiting Ph.D. student (from HEC Montréal), 2020-2021

M.A.Sc. STUDENTS

- Neda Tanoumand, M.A.Sc.: Graduated in December 2022 (co-S: Joe Naoum-Sawaya, Ivey Business School)
- Manion Anderson, M.A.Sc.: Graduated in January 2022 (co-S: Vahid Sarhangian, UofT-MIE)
- Juyoung Wang, M.A.Sc.: Graduated in August 2021 (co-S: Mucahit Cevik, TMU)
- Moira MacNeil, M.A.Sc.: Graduated in August 2019
- Stefana Filipova, M.A.Sc.: Graduated in September 2018 (co-S: Chris Beck, UofT-MIE)

SENIOR UNDERGRADUATE STUDENTS

- Daniel Deza, EngSci student, 2023-2024 (co-S: Amer Shalaby, UofT-CIV)
(First Position: Ph.D. student at Princeton-ORFE)
- Lorna Licollari, EngSci student, 2022-2023 (co-S: Amer Shalaby, UofT-CIV)
- Haoyuan Xue, MIE student, 2021-2022
(Thesis is the Recipient of the Centennial Senior Project Awards 2022)
(First Position: Ph.D. student at UofT-MIE)
- Anna Deza, EngSci student, 2019-2020
(First Position: Ph.D. student at Berkeley-IEOR)

Capstone Projects

(Each project was conducted by a group of three/four senior undergraduate students.)

- Trillium 2017-2018, Air Canada1 2018-2019, Air Canada2 2018-2019 (3rd place in IE Poster), Air Canada1 2019-2020, Air Canada2 2019-2020, Ceridian2 2020-2021, LEAP 2020-2021, Ceridian1 2021-2022, Ceridian2 2021-2022, LEAP 2022-2023

TEACHING

Graduate Courses

- **UoE – MATH11247: Optimization under Uncertainty**
 - To be offered in Semester 2, 2025
- **UoE – MATH11158: Optimization Methods in Finance**
 - Tutor, Semester 2, 2024
- **UoE – MATH11028: Simulation**
 - Checker, Semester 2, 2024
- **UofT – MIE 1603 / MIE 1653: Integer Programming / Integer Programming Applications**
 - Audience:
 - ▷ MIE 1603: Graduate research students (i.e., PhD and MASc)
 - ▷ MIE 1653: MEng students
 - Note: This is a 2-in-1 course. There are officially two course codes (namely MIE 1603 and MIE 1653). The course content is mostly the same for the two groups, and I hold common lectures. However, I have different expectations from two groups of students (and have different grading scale for them). In that regard, differences appear in some bi-weekly assignment and exam questions, and the fact that the latter group is not expected to do a course project.
 - Class size (total): Around 25 (the range has been 16-32)
 - Summary: This course covers fundamentals of integer programming such as advanced modeling techniques, branch-and-bound, valid inequalities, decomposition methods, Lagrangian relaxation, and column generation. The course has bi-weekly homework assignments covering both theoretical and computational aspects, midterm and final exams, as well as a term research project for research students. As the course covers both theoretical and computational aspects, it improves students' mathematical skills and programming ability.
 - Terms Taught: Winter 2017, Winter 2018, Winter 2019, Winter 2020, Winter 2021, Winter 2022, Winter 2023
 - Design Responsibilities: Although the course existed when I joined UofT, I designed its whole content completely differently myself. Other than the design and organization of the course topics, which I slightly modify every time I teach the course, I create new assignment and exam questions every year.
- **UofT – MIE 1612: Stochastic Programming and Robust Optimization**
 - Audience: Graduate students (primarily PhD and MASc, but some interested MEng students also benefit from the course)

- Class size: Around 15 (the range has been 11-20)
- Summary: The stochastic programming portion of the course covers fundamentals such as modeling concepts, risk measures and their incorporation into stochastic models, two-stage stochastic programming algorithms (e.g., Benders decomposition, trust-region methods, level method and progressive hedging), sampling methods (e.g., SAA and statistical inference), multistage stochastic programming modeling and solution method basics. The robust optimization portion discusses basics such as tractable robust counterparts, adjustable robust models, affine decision rules and finite adaptability. The course design is pretty much the same as in MIE1603; there are bi-weekly homework assignments covering both theoretical and computational aspects, midterm and final exams, as well as a term research project. As the course covers both theoretical and computational aspects, it improves students' mathematical skills and programming ability.
- Terms Taught: Fall 2019, Fall 2020, Fall 2021, Fall 2022
- Design Responsibilities: This is a completely new course that I designed and started to offer in Fall 2019 for the first time. As in MIE1603/1653, other than the design and organization of the course topics, which I slightly modify every time I teach the course, I create new assignment and exam questions every year.

Undergraduate Courses

• UofT – MIE 335: Algorithms and Numerical Methods

- Audience: 3rd year IE students
- Class size: Around 120
- Summary: The course covers fundamentals of algorithm design and analyses such as efficiency, running time, input size, worst-case analyses, big-O complexity, recursion, divide-and-conquer, hashing and greedy methods with examples on sorting, encryption and combinatorial optimization; as well as some important numerical methods such as matrix multiplication and inversion, Gaussian elimination, forward/backward substitution and matrix decomposition. Also, the last portion of the course introduces unconstrained optimization, mostly focusing on Steepest Descent and Newton's methods. As the course covers both methodological and computational aspects, it improves students' mathematical skills and programming ability. The course structure consists of lectures, tutorials, labs, and term-wide group project.
- Terms Taught: Winter 2018, Winter 2019, Winter 2020, Winter 2021, Winter 2022, Winter 2023
- Design Responsibilities: Keeping the course topics intact, I re-designed all the course material, namely lecture slides, lab assignments, tutorial questions, and course project (a new one for each year taught), as well as created brand new midterm and final questions every year.

• UofT – MIE191: Seminar Course - Introduction to Mechanical and Industrial Engineering

- Audience: 1st year ME & IE students
- Class size: Around 200
- Summary: This is a seminar series that previews the core fields in MIE. Each seminar is given by a professional (professor or someone from industry) in one of the major areas in MIE. The seminar format varies and includes methodology and application examples, challenges, case studies, career opportunities, etc. The purpose of the seminar series is to provide first-year students with some understanding of the various options within the department to enable them to make educated choices for their future years and inspire them for their career. This course is offered on a credit/no credit basis.
- Terms Taught: Winter 2019 (shared the work load with another professor), Winter 2020 (shared the work load with another professor), Winter 2021 (coordinated the full course)
- Design Responsibilities: I followed the existing format where my primary responsibilities were finding speakers, preparing the seminar schedule, and moderating the seminars. For the case when the course is taught fully online due to the pandemic, I designed a final assessment task for students to reflect their learning and inspirations from the course.